

What is claimed is:

subj 3 > 1. A photomask having, on a glass plate, a shade pattern containing at least nanoparticles and a binder.

2. The photomask according to claim 1, wherein said glass plate has a structure of a phase shifter for partially inverting the phase of exposure light and has, on said phase shifter, the shade pattern containing at least said nanoparticles and the binder.

3. The photomask according to claim 1, wherein said shade pattern includes a plurality of nanoparticles having different diameters.

4. The photomask according to claim 1, wherein the refractive index of said nanoparticles to exposure light is different from that of said binder.

5. The photomask according to claim 1, wherein said nanoparticles are inorganic matter.

6. The photomask according to claim 1, wherein said nanoparticles are carbon.

7. The photomask according to claim 1, wherein the transmittance of said shade pattern is 16% or less at when exposure wavelength is 100 nm or more and 500 nm or less.

8. The photomask according to claim 1, wherein the transmittance of said shade pattern is 16% or less when an exposure wavelength is 100 nm or more and 700 nm or less.

9. The photomask according to claim 1,

wherein the transmittance of said shade pattern is 1% or less when an exposure wavelength is 100 nm or more and 500 nm or less.

10. The photomask according to claim 1,
wherein the transmittance of said shade pattern is 1% or less when an exposure wavelength is 100 nm or more and 700 nm or less.

11. The photomask according to claim 1,
wherein each diameter of said nanoparticles is 200 nm or less.

12. The photomask according to claim 1,
wherein the content of said nanoparticles in said shade pattern is 10 % or more and 99% or less.

13. The photomask according to claim 2,
wherein said phase shifter is applying-forming glass.
14. The photomask according to claim 2,
wherein said phase shifter has such a structure that said glass plate is dented.

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